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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD RAY DENTON, EDWARD ARTHUR SMALLWOOD, and KEVIN SCOTT O'MEARA

Appeal 2008-2161
Application 09/829,714
U.S. Patent Application Publication 2002/0144942
Technology Center 1700

Decided: 4 June 2008

Before JAMESON LEE, SALLY GARDNER LANE, and MICHAEL P. TIERNEY *Administrative Patent Judges*.

LANE, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF THE CASE

The appeal is from a Final Rejection of claims 66-77, and 79-87. 35 U.S.C. § 134. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

The application was filed April 10, 2001. The real party in interest is said to be Parker Hannifin Corp. (App. Br. at 1).

The Examiner relied on the following references:

Name	Number	Date	Abbreviation
MacDonnell, et al.	3,506,475	Apr. 14, 1970	("MacDonnell '475")
MacDonnell, et al.	3,516,549	Jun. 23, 1970	("MacDonnell '549")
Kahlbaugh, et al.	6,165,572	Dec. 26, 2000	("Kahlbaugh")
Miller et al.	5,552,048	Sep. 3, 1996	("Miller")
Wylie et al.	6,331,223	Dec. 18, 2001	("Wylie")

Appellants did not argue against the prior art status of any of these references.

Appellants appealed the rejection of claims 66-75, 77, and 79-87, all the pending claims, under 35 U.S.C. § 103 over the combination of the teachings of MacDonnell '549, MacDonnell '475, Kahlbaugh, and Miller. Appellants argued separately for the patentability of claims 80 and 84 (App. Br. at 9), but did not separately argue for the patentability of any other of the rejected claims. We review claims 66, 80, and 84 as representative claims. *See* Bd. R. 41.37(c)(1)(vii).

Appellants also appealed the rejection of claim 76 over the combination of the teachings of MacDonnell '549, MacDonnell '475, Kahlbaugh, Miller, and Wylie.

II. FINDINGS OF FACT

The record supports the following findings of fact as well as any other findings of fact set forth in this opinion, by at least a preponderance of the evidence.

1. Claim 66 recites:

> A filter element comprising a cylindrical filter media and an exoskeleton for the filter media;

the filter media being formed from only cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;

the exoskeleton comprising a support screen thermally bonded to the radially-outer peaks of the filter media, providing an at least 50% open flow area, and providing a tight array of attachment points supporting the pleats in an appropriately spaced and non-collapsed condition;

the support screen comprising a sheet of screen material having a width approximately equal to the axial dimension of the filter media;

the filter element being characterized by the absence of cellulose-fiber and woven-mesh endoskeleton support layers in the filter media and by the absence of a support structure surrounding the support screen.

2. Claim 80 recites:

A filter element consisting essentially of:

a cylindrical filter media formed from cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;

a support screen having a width approximately equal to the axial dimension of the filter media; and thermally bonded to the radially-outer peaks of the filter media; and

an end cap bonded to each axial end of the filter media.

3. Claim 84 recites:

A filter element consisting essentially of:

a cylindrical filter media formed from cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;

a support screen having a width approximately equal to the axial dimension of the filter media; and thermally bonded to the radially-outer peaks of the filter media;

an end cap bonded to each axial end of the filter media; and

a central tube circumscribed by the filter medial.

4. Claim 76 recites:

A filter element as set forth in claim 66, wherein the support screen is made of a PVC coated fiberglass mesh.

5. The claimed filter element comprises:

(1) a filter media

and

(2) a support screen.

6. Figure 1 of Appellants' specification is reproduced below:

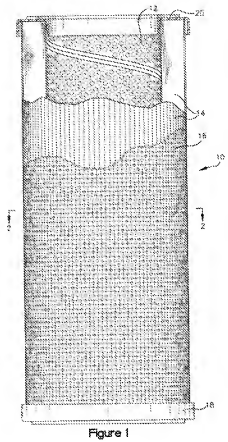

Figure 1

Figure 1 depicts a filter with an "outer support screen 16" and a "cylindrical pleated filter media 14 circumscribing the central tube 12." (*See* Spec. 6, ll. 4-7).

7. Figure 9A of Appellants' specification is depicted below:

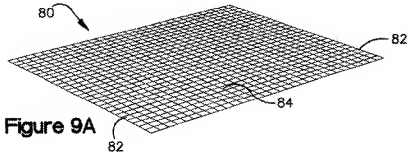

Figure 9A

Figure 9A depicts a close-up view of the outer support screen 16 of Figure 1.

8. MacDonnell '475 discloses a filter for "high pressure lubrication systems." (MacDonnell '475 col. 1, ll. 33-35).

9. Figure 1 of MacDonnell is depicted below:

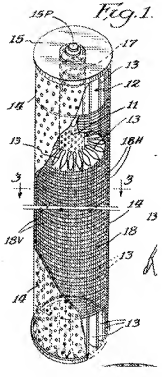

Figure 1 depicts an "elongated permeable filter section 12 disposed in an annular array closely encircling the core and characterized by a series of

circumferentially distributed pleats 13 . . . ." (MacDonnell '475 col. 4, ll. 14-17).

10. Figure 4 of MacDonnell '475 is depicted below:

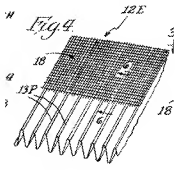

Figure 4 depicts the netting 18 attached to the pleats of the filter 13.

11. MacDonnell '475 states:

> One tension transmitting structure for ganging the pleats is represented in FIGS. 1 to 5 as comprising a netting 18 of flexible strand material and extending in encircling relaxed relation about the outer peaks 13P of the pleats. It is apparent in the drawings that the netting has multiple point intersecting contact for multiple point securement to each of these outer peaks 13P. The netting 18 is represented as a reticulated network of generally horizontal strands 18H and generally vertical strands 18V. The horizontal strands 18H preferably extend substantially circularly of the pleat circumference for optimum control of circumferential flexure but some angling can be utilized in order to increase the points of intersection between the vertical strands 18V and the outer peaks. In the arrangement illustrated, the netting has a vertical dimension corresponding to about 75% of the length or height of the filter element.

(MacDonnell '475 col. 4, ll. 56-73).

12. MacDonnell ‘475 teaches that the filter media can be of “other fibrous materials such as wood or synthetics.” (MacDonnell ‘475 col. 5, ll. 12-15).

13. MacDonnell ‘475 teaches: “An outer covering wrap 14 closely encircles the filter section 12 and may extend the full length thereof to seat in upper and lower end caps 15 and 16, respectively, which are usually bonded in closure relation across opposite ends of the filter section.” (MacDonnell ‘475 col. 4, ll. 21-25).

14. MacDonnell ‘475 teaches: “The outer cover wrap 14 may be of perforated paper, paperboard, or thin sheet metal construction when used full length of the filter or may be imperforate when extending only part of the way of the length of the filter.” (MacDonnell ‘475 col. 4, ll. 42-45).

15. The filter taught in MacDonnell ‘475 has a “perforated cylindrical tube 11 serving as a core . . . .” (MacDonnell ‘475 col. 4, ll. 13-14).

16. MacDonnell ‘549 discloses a filter for use in locomotive lubrication under “extreme operating conditions.” (MacDonnell ‘549 col. 1, ll. 32-35).

17. The filter disclosed in MacDonnell ‘549 has “a perforated cylindrical tube 11 serving as a core and an elongated permeable filter section 12 disposed in an annular array closely encircling the core and characterized by a series of circumferentially distributed pleats 13 that extend the full length of the core.” (MacDonnell ‘549 col. 2, ll. 34-38).

18. The filter disclosed in MacDonnell ‘549 has an “outer cover wrap 14 [that] is shown closely encircling the pleated filter element and may

also extend the full length to seat in upper and lower end caps 15 and 16, respectively." (MacDonnell '549 col. 2, ll. 43-46).

19. The "outer cover wrap" disclosed in MacDonnell '549 may be "selected of materials suitable for disposal by burning" or may be made of metal. (MacDonnell '549 col. 3, ll. 28-35).

20. Miller relates to a pleated filter element. (Miller Abstract).

21. Miller teaches a "wrap member" made of mesh, which is attached to the filter by "fusion bonding." (Miller col. 11, l. 59, through col. 12, l. 6).

22. Claims 67-71 depend on claim 66 and include the limitation, "wherein the layers comprise an inner layer, an outer layer, and filtration layer therebetween . . . ."

23. Kahlbaugh relates to filters for applications including fuel filters. (Kahlbaugh at col. 4, ll. 48-51).

24. Kahlbaugh teaches filter media that "comprises a plurality of layers." (Kahlbaugh at col. 25, l. 8 and Fig. 8A).

25. Claim 76 depends from claim 66 and limits the support screen to one "made of a PVC coated fiberglass mesh." (Claim 76).

26. Wylie relates to screens for windows. (Wylie at col. 1, ll. 9-11).

27. Wylie teaches that "[t]he PVC coated fiberglass screen is the most popular type . . . ." (Wylie at col. 2, ll. 3-4).

III. ISSUES

The issues are:

(1) Whether the Appellants have shown that the Examiner erred in rejecting claims 66-75, 77, and 79-87 under 35 U.S.C. § 103(a) over the combination of the teachings of MacDonnell '549, MacDonnell '475, Kahlbaugh, and Miller.

(2) Whether the Appellants have shown that the Examiner erred in rejecting claim 76 under 35 U.S.C. § 103(a) over the combination of the teachings of MacDonnell '549, MacDonnell '475, Kahlbaugh, Miller, and Wylie.

IV. LEGAL PRINCIPLES

We interpret claims as broadly as reasonable in view of the specification, but we do not read limitations from the specification into a claim. *Elekta Instr. S.A. v. O.U.R. Sci. Int'l, Inc.*, 214 F.3d 1302, 1307 (Fed. Cir. 2000).

To determine whether subject matter would have been obvious, "the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. . . . Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966).

The Supreme Court has noted that a combination of references renders claimed subject matter obvious

> [w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.

KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727, 1740 (2007).

V. ANALYSIS

Claims 66-75, 77, and 79-87

Claim 66, which is representative of claims 67-75 and 77-79, recites:

> A filter element comprising a cylindrical filter media and an exoskeleton for the filter media;
>
> the filter media being formed from only cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;
>
> the exoskeleton comprising a support screen thermally bonded to the radially-outer peaks of the filter media, providing an at least 50% open flow area, and providing a tight array of attachment points supporting the pleats in an appropriately spaced and non-collapsed condition;
>
> the support screen comprising a sheet of screen material having a width approximately equal to the axial dimension of the filter media;
>
> the filter element being characterized by the absence of cellulose-fiber and woven-mesh endoskeleton support layers in the filter media and by the absence of a support structure surrounding the support screen.

The filter element of claim 1 comprises two parts: (1) a filter media and (2) a support screen. (FF[1] 2). The filter element of claim 1 is "characterized by . . . the absence of a support structure surrounding the support screen." (FF

[1] Finding of Fact.

1). We understand the claimed filter to be limited to those filters that do not have any structure that may act as a support surrounding the support screen

MacDonnell '475 discloses a filter element comprising pleated filter media (FF 6) with a netting attached to the pleats (FFs 7 and 8). Thus, MacDonnell teaches the claim elements of a filter media and a support screen. However, the filter element taught in MacDonnell '475 also includes "an outer covering wrap" (FF 13), which can be made of "perforated paper, paperboard, or thin sheet metal . . ." (FF 14). The Examiner did not direct us to any teaching in MacDonnell '475 that the "outer covering wrap" is not a "support structure." In particular, the Examiner did not explain or provide evidence showing that the materials MacDonnell teaches as forming the "outer covering wrap" would not offer support.

MacDonnell '549 also teaches a filter with an outer cover wrap (FF 16-18), The outer wrap may be made of "materials suitable for disposal burning" or of metal. (FF 19). The Examiner did not direct us to any teaching that these materials would not offer support. Furthermore, as the Examiner acknowledges, MacDonnell '549 "doesn't teach the [outer cover wrap] being thermally-bonded to the radially-outer peaks of the filter media, providing an at least 50% open flow area, and providing a tight array of attachment points supporting the pleats in an appropriately spaced and non-collapsed condition . . . ." (Ans. 3). Thus, the outer cover wrap of MacDonnell '549 does not equate to the claimed support screen such that MacDonnell '549 could be said to show a lack of a support structure. The Examiner did not direct us to disclosures of Kahlbaugh or Miller that teach a filter element including a filter media and a support screen, but lacking a support structure around the support screen.

The Examiner asserted that the filter of MacDonnell '549 "is characterized by the absence of support structure surrounding the support screen." (Ans. 3). The Examiner further asserted that

> it would have been obvious to one ordinarily skilled in the art at the time of the invention to have the bonded exoskeleton support screen of MacDonnell '475 for the exoskeleton of MacDonnell '549 (or to have the support of MacDonnell '549 to be bonded to the pleats as in MacDonnell '475), since '475 teaches the benefit of ganging the pleats to cause a flexing action to prevent a permanent pleat collapse."

(Ans. 4). We understand the Examiner's position to be that those in the art would have substituted the netting 18 of MacDonnell '475 for the outer covering wrap 14 of MacDonnell '549, to produce a support screen bonded to the filter pleats without any additional support structure. We disagree. The Examiner has not explained what reason one skilled in the art would have had for substituting the netting for the outer covering wrap. KSR at 1740. Furthermore, the Examiner has not explained why those in the art reasonably would have expected the substitution of netting for an outer covering wrap to have led to a functioning filter.

We understand the Examiner's alternative strategy ("to have the support of MacDonnell '549 to be bonded to the pleats as in MacDonnell '475") to mean that the outer covering wrap 14 of MacDonnell '549 is bonded to the filter pleats 13, and thus acts as the claimed "support screen." Again, the Examiner has not explained why those in the art would have had a reasonable expectation of success for such a filter. The Examiner does not explain what reason one skilled in the art would have had for bonding the outer covering wrap to the filter pleats nor does the Examiner explain why

one skilled in the art reasonably would have expected a filter that binds the outer covering wrap to the filter pleats would result in a functioning filter.

None of the cited references teaches a filter with a filter media and a support screen, but lacking a support structure surrounding the support screen. The Examiner has not explained why the filter element of Appellants' claim 66 would have been obvious. Thus, the Examiner erred in rejecting claim 66 under 35 U.S.C. § 103(a).

Claim 80, which is representative of claims 81-83, recites:

> A filter element consisting essentially of:
> a cylindrical filter media formed from cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;
> a support screen having a width approximately equal to the axial dimension of the filter media; and thermally bonded to the radially-outer peaks of the filter media; and
> an end cap bonded to each axial end of the filter media.

Claim 84, which is representative of claims 85-87, recites:

> A filter element consisting essentially of:
> a cylindrical filter media formed from cellulose-fiber-free and woven-mesh-free layers which are folded to form a plurality of longitudinally-extending pleats having radially inner-peaks defining an inner diameter and radially-outer peaks defining an outer diameter;
> a support screen having a width approximately equal to the axial dimension of the filter media; and thermally bonded to the radially-outer peaks of the filter media;
> an end cap bonded to each axial end of the filter media; and
> a central tube circumscribed by the filter media.

Both are drawn to a filter element "consisting essentially of" (1) a "cylindrical filter media" and (2) a support screen.

MacDonnell ‘475 and MacDonnell ‘549 disclose a filter with a cylindrical filter media (FF 9 and 17), while MacDonnell ‘475 discloses a supportive netting (FF 10 and 11). The supportive netting in MacDonnell ‘475 extends “about 75% of the length or height of the filter element” (FF 11). The filter media taught in MacDonnell ‘475 can be of “other fibrous materials, such as wood or synthetics” (FF 12) and thus is “cellulose-fiber-free and woven-mesh-free.” MacDonnell ‘475 and MacDonnell ‘549 also teaches end caps (FFs 13 and 18) and a central tube (FFs 15 and 17). Miller teaches a mesh attached to a filter by “fusion bonding.” (FF 21). Thus, the combination of MacDonnell ‘475, MacDonnell ‘549, and Miller disclose the elements of the filters recited in claims 80 and 84. Kahlbaugh discloses elements recited in claims that depend from claims 80 and 84.

We understand Appellants to argue that MacDonnell ‘475 teaches a “second outer filter support [that] would not [be] categorized as an immaterial feature,” and so would be excluded from the “consisting essentially” language of claims 80 and 84. (App. Br. 9). Appellants noted that

> the specification discusses details of the attachment of exoskeleton to the filter media "so that fluid flow is not restricted" while still providing a "tight array of peak attachment" so that filter media is "sufficiently supported.'" Such non-restriction and sufficiently-support features would not be addressed unless another supporting (and potentially restricting) structure would constitute a material change in characteristics.

(Reply Br. 2 (citing Spec. p. 3, ll. 26-29, and p. 4, ll. 10-12)).

The term "consisting essentially of" limits the claims to the listed ingredients and is open to unlisted ingredients that do not "materially affect the basic and novel properties of the invention". *PPG Indus. v. Guardian Indus., Corp.*, 156 F.3d 1351, 1354 (Fed. Cir. 1998). Appellants have not provided any evidence that the materials for the outer covering wrap recited in MacDonnell '475 (FF 13 and 14) would "materially affect the basic and novel properties of the invention". For instance, Appellants have not provided evidence showing that the materials of the outer covering wrap would restrict fluid flow. Attorney argument is not evidence.

Appellants have not met their burden to show that such an outer covering wrap is excluded from claims 80 and 84. In the absence of evidence showing this outer covering wrap would "materially affect the basic and novel properties of the invention" the claimed filter element would have been obvious and the Examiner did not err in rejecting claims 80 and 84 under 35 U.S.C. § 103(a).

Claim 76

Claim 76 depends from claim 66 and, accordingly, requires "the absence of a support structure surrounding the support screen." (Claim 66). The Examiner did not direct us to any teaching in Wylie of a filter with a filter media and a support screen, but lacking a support structure surrounding the support screen, we find the subject matter of claim 76 would not have been obvious for the same reasons discussed above. Accordingly, the Examiner erred in rejecting claim 76 under 35 U.S.C. § 103(a).

VI. ORDER

Upon consideration of the record and for the reasons given, the Examiner's rejection of claims 66-75 and 77-79 under 35 U.S.C. § 103(a)

over the combination of the teachings of MacDonnell '549, MacDonnell '475, Kahlbaugh, and Miller is REVERSED;

the Examiner's rejection of claims 80-87 under 35 U.S.C. § 103(a) over the combination of the teachings of MacDonnell '549, MacDonnell '475, Kahlbaugh, and Miller is AFFIRMED; and

the Examiner's rejection of claim 76 under 35 U.S.C. § 103(a) over the combination of the teachings of MacDonnell '549, MacDonnell '475, Kahlbaugh, Miller, and Wylie is REVERSED.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART and REVERESED-IN-PART

cc (via U.S. Mail):

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